DOCUMENT RESUME

ED 215 213 CE 032 134

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TITLE Cooperative Education: Industry and Education Cooperating.
PUB DATE [82]
NOTE 12p.; Paper presented at the National Conference of the American Technical Education Association (1982).

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Business; *College Credits; *Cooperative Education; Definitions; *Educational Cooperation; Educational History; Educational Objectives; Educational Practices; Education Work Relationship; Engineering Technology; *Outcomes of Education; *Program Design; Program Development; Program Effectiveness; *School Business Relationship; School Role; Student Educational Objectives; Student Evaluation; Two Year Colleges; Work Experience Programs
IDENTIFIERS *Nashville State Technical Institute TN

ABSTRACT

Like most cooperative education programs, the one at Nashville State Technical Institute in Tennessee benefits all concerned--the student, the college, business and industry, and the community. Among the many benefits of the cooperative education program are the following: clarification of student career goals, provision of relevant professional experience, establishment of a good rapport between the college and the community, development of a pool of highly motivated individuals for entry level positions, and development of the possibility for employer input into college programing decisions. Available to all students enrolled in any engineering technology or business program, the Nashville State Technical Institute cooperative education program involves three credit plans. These are the alternating plan (alternate quarters of full-time employment and full-time study), the parallel plan (simultaneous part-time employment and study), and the extended day plan (simultaneous full-time employment and part-time study). Credit for each plan is awarded on the basis of several criteria, including employer evaluation, academic advisor evaluation, student notes made during the work experience, and a final student paper explaining how the experience met certain objectives. Highly successful, the Nashville program has provided many benefits to business, students, and the community. (MN)

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COOPERATIVE EDUCATION: INDUSTRY AND EDUCATION COOPERATING

By Anne McNutt

Since its beginning at the University of Cincinnati in the early part of this century, cooperative education has been based upon two concepts: many parts of most professions require practical work experience because they do not lend themselves to being taught effectively in classrooms and many, if not most, students work during their college careers.[1] During this century, the availability of cooperative education has expanded from Dean Schneider's single experimental program at Cincinnati to many programs on both two- and four-year college campuses. As Pat Cross has noted, the growth of the cooperative education movement "seems intimately in touch with our times".[2] Today technical training is viewed by individual students and their families as "a passport for entry into the modern urban industrialized economy with its disproportionately high-paying employment opportunities."[3]

There are probably as many different definitions of cooperative education offered as there are different individuals who serve as practitioners and researchers in the field; however, almost all agree that cooperative education programs must consist of certain essential elements:

--a planned, practical work experience,

--related technical instruction, and

--coordinated supervision and evaluation of the work experience.[4]

Although there is near unanimity in identifying essential elements of a cooperative education plan, the practice of awarding degree credit for cooperative education work experience as a substitute for credits in an on-campus program of study is a relatively recent phenomenon, and the debate concerning the validity of this practice has yet to subside completely.

One well-known authority in the field argues convincingly that "if cooperative work experience is well designed and administered as an integral part of

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the educational program, then it merits recognition as part of the degree requirements."[5] During recent years the practice of awarding degree credit has increased. Apparently there are two reasons for this increase: cooperative education is a valid form of education, with significant learning outcomes, and the awarding of credit has resolved some operational problems.[6]

In its early form cooperative education consisted of alternating quarters or semesters of full-time formal study and of practical full-time work. Currently, cooperative education programs are available in alternating, extended day, and parallel plans. In the parallel cooperative education plan, the student is employed part-time while he also attends classes during the same quarter or semester, usually dividing his time equally between the two activities. Extended day cooperative education consists of full-time work and part-time school. A more recent development than the traditional alternating plan, the parallel plan has the added attractions of serving students who are employed part-time and of more readily drawing the interest of the small businessman as a co-op employer.

Because of its very nature, cooperative education dictates that participating educational institutions cultivate effective working relationships with business and industry. These relationships benefit all concerned--the student, the college, the business or industry, and the community. The remainder of this paper will focus on the benefits realized from a cooperative education program, first in general terms and then in a specific case by describing the cooperative education program at Nashville State Technical Institute.

As noted earlier, cooperative education benefits all involved. An effective cooperative education program has the potential for providing several benefits to students. Included among these benefits are

1) clarifying and refining career goals,

2) understanding classroom theory better by putting it to practice,

3) obtaining relevant professional experience,

4) emphasizing the importance of academic work,

5) developing self-confidence, maturity, and responsibility,

6) facilitating development of critical social skills,

7) developing attitudinal skills critical to employment,

8) increasing potential placement, advancement, and remuneration, and

9) enabling the student to benefit financially.[8]

Thus, cooperative education assists the student in personal, social, and career development because it places him in a new situation which requires different modes of behavior.

Just as the student benefits greatly by participating in cooperative education, so does the college. Perhaps the greatest value to the institution is the additional college-community interaction that occurs. As a result of this interaction, faculty, counselors, and administrators are able to keep aware of industry's current demands; the expertise of individuals outside the school is offered to co-op students; and the co-op students return to campus and share their experiences with their fellow students. In addition, the cooperative education program may be used as an effective means of recruiting, not an unimportant consideration with today's declining enrollments. Another obvious advantage for the institution is that through this program it is able to offer students educational experiences in more elaborate, expensive, or up-to-dace facilities than would otherwise be possible.[9]

While cooperative education programs benefit the student and the college, the business or industry which employs co-op students also profits from these programs. One obvious advantage is that the employer is provided with a pool of highly motivated individuals for entry level positions. By observing and evaluating the co-op student, the employer is able to screen applicants more carefully for full-time positions. Also, because of his relationship with the school, the co-op employer will have input into decisions concerning the college program, thereby helping to ensure that a pool of qualified applicants for the

future is created. Because of co-op the employer maintains good contacts with the college and is, therefore, more than likely aware of the various programs and special offerings available. By using these contacts with the college to see that current employees who need their skills upgraded obtain the necessary classroom training, the employer realizes additional benefits. The conscientious employer encourages his co-op supervisors to be good managers. In order to supervise co-op students effectively, the professional staff of the business or industry must themselves possess current, up-to-date knowledge. In some cases, the staff will need to acquire additional skills through course work, seminars, or various other professional development activities. Clearly the firm benefits from this updating. By employing co-op students, the effective manager can also release his highly skilled employees from performing routine tasks, allowing these employees to devote their full efforts to more complex projects. Perhaps a benefit for the employer that frequently goes unnoticed is that employing youth in the cooperative education program allows the business or industry to make a significant contribution to community service.[10]

The community also realizes other benefits from having an effective cooperative education program available. A good cooperative education program obviously strengthens the rapport between the college and the community. By assisting individuals to make a successful transition from school to work, cooperative education also increases the number of people in the community who become self-supporting. The cooperative education program affords local students the opportunity to attain job skills, work experience, and civic competence, and in the process enhances the chances that these students will remain in the community after graduation.[11]

Thus, in a cooperative education program because of the close working relationship between the co-op employer and the college, both organizations reap

rich benefits. In addition there are decided advantages to the student who participates in the program and to the community in which the program is located.

Since 1976, Nashville State Technical Institute has realized the benefits of its cooperative education program. Nashville Tech is a public, two-year, postsecondary institution offering college level work leading to an associate degree in thirteen different majors and to a one-year certificate in eight fields. These degrees and certificates are available in engineering technology, allied health, and business. Nashville Tech is the second largest of the four technical institutes in the state and is governed by the State Board for Vocational Education. Fall Quarter 1981 it enrolled a total of 5970 students and had an FTE of 3352. Of the students enrolled approximately 56% were in engineering technology; 43%, business; and 1%, allied health.

The cooperative education work experience is open to all students enrolled in any engineering technology or business program. Students may choose to participate in the alternating plan (alternate quarters of full-time work and full-time study), the parallel plan (simultaneous part-time school and part-time work), or the extended day plan (simultaneous full-time work and part-time school). In each case credit is awarded. For full-time work five hours credit is earned; for part-time work, two and one-half hours.

At Nashville Tech certain courses may be replaced by an approved Cooperative Education work experience. In order to receive substitutional credit for work experience, students must obtain approval from the appropriate academic department head prior to enrolling in co-op. For some curricula, particularly those in the engineering technologies, these courses have been specifically identified in the catalog. For example, in the industrial engineering technology program, Graphics of Communication, Electrical Systems, Accounting for Engineers, Engineering Materials and Production Processes, Industrial Engineering Project, and Introduction to Operations Research are so identified. For other curricula, a

general statement indicates that up to 15 hours of Co-op credit may be awarded in a particular major, subject to the prior approval of the Deaprtment Head.

With the assistance of his advisor, each student completes a Student/ Employer Learning Agreement on which he gives demographic information and lists the specific learning objectives and a description of the work to be performed. (Figure 1 shows a blank Learning Agreement.) When he meets with his advisor, in addition to discussing the specific work to be performed and the learning objectives for the work experience, the student also explores possibilities for course replacement or substitution. After the student and advisor have signed the Learning Agreement, the student then discusses the proposed training with the employer and, if the employer agrees to provide the training outlined in the Learning Agreement, obtains the employer's signature. After the student, employer, and academic advisor have each signed the form, a copy is sent to the Co-op office.

The type of work to be performed and the specific learning objectives will, of course, vary with the individual student and his specific learning experiences. To illustrate the types of information typically included in the objectives, a representative sample set of learning objectives for a student majoring in electronics follows:

1) Gain more experience working with communication equipment (such as modems, control units, data sets) connected to the transmission lines.
2) Have a better understanding of communication transmission media (modulation/demodulation, signal levels, carrier signals) used in passing the data traffic.
3) Become familiar with the various test equipment and procedure (DYNATECH, patch panels, power supplies) used to troubleshoot and correct circuit outages.
4) Have a working knowledge of the equipment and its relative circuitry, the peripheral devices and their capabilities, and an overall understanding of the system as a whole.

CO-OP STUDENT/EMPLOYER LEARNING AGREEMENT

(This form must be completed and returned to your advisor within 10 days of the registration day for the quarter in which the work experience is to be obtained.)

Name _____ Date _____ Quarter _____

Major _____ Advisor _____

Social Security # _____ Telephone (_____) _____
Area Code

Student's Address _____
Street City & State Zip

Employer (Company Name) _____

Company's Address _____
Street City & State Zip

Supervisor _____ Telephone (_____) _____
Area Code

Describe the type of work to be performed:

_____

_____

_____

_____

_____

Number of hours worked each week _____ Salary _____
Per Hour

Is this a full work week with your company? _____

Do you anticipate this job lasting a minimum of 10 weeks? _____

Learning objectives for this work experience:

1. _____

_____

2. _____

_____

3. _____

_____

4. _____

_____

*Possible course replacement _____

_____
*Department Head approval for course substitution or waiver. (Depending upon satisfactory evaluation of the work experience)

_____ _____
Student Date

_____ _____
Employer Date

Distribution

Employer—WHITE COPY
Student —CANARY COPY
Advisor —PINK COPY
Co-op Coordinator —GOLDENROD COPY

_____ _____
Advisor Date
(Sign and date when form is returned.)

Figure 1

As a result of his work experience in State Government in teleprocessing operations, the student who wrote these objectives received substitutional credit for Industrial Instrumentation.

While registering for the Co-op courses, each student is advised to keep careful notes relating to his work experience so that he may substantiate that the objectives listed in his Learning Agreement were met during the quarter. These notes contain valuable information. At the close of his work experience, the Co-op student uses these notes to write a paper describing his work experience, explaining how the objectives were met, and relating his experience specifically to his academic field. This comprehensive report about the co-op work experience, along with the employer's evaluation, is used to decide whether the learning objectives were met and to determine, in part, the student's course grade.

Although the co-op department is presently staffed only by the coordinator and a secretary, during various quarters faculty members from other departments receive released time to supervise co-op students and to work with business and industry to establish new jobs for cooperative education. By taking advantage of this opportunity, faculty members are able to maintain important industrial contacts and to keep abreast of the latest trends and developments in industry. Another benefit has been the recent growth in the industrial engineering technology program at Nashville Tech, growth which has largely been attributable to using co-op as a recruiting tool.

Through its cooperative education program, Nashville Tech has strengthened its ties with industry. During the time that co-op has been offered, over two hundred different businesses and industries including such organizations as Ford Motor Company, General Electric, IBM, Nissan Motors, Northern Telecom, Toshiba, Tennessee Valley Authority, Nashville Electric Service, and E.I. Dupont de Nemours have employed Nashville Tech co-op student

Like all programs at the school, Co-op has an advisory committee which meets quarterly to review the progress of the program and to make recommendations. This Committee is composed of students, department heads, division heads, and employers. Because of this additional advisory committee, the number of business and industrial representatives who are involved with Nashville Tech has increased. In addition to the quantitative increase, an apparent qualitative increase has also occurred. In 1980 one individual served on both the Co-op Advisory Committee and the General Advisory Committee for the school and was extremely effective on both committees. Clearly, its cooperative education program has enabled Nashville Tech to develop and maintain vital contacts with local business and industry.

More important than encouraging Nashville Tech to develop these additional industrial contacts, the Cooperative Education Program has allowed students who have participated in Co-op to gain relevant work experience; to develop self-confidence, maturity, and responsibility; to benefit financially; and to increase their potential placement and remuneration. In fact, a recent follow-up survey sent to all Co-op students who had graduated from Nashville Tech revealed that approximately 47% of those responding had accepted a full-time position with their Co-op employer.

By offering cooperative education, Nashville Tech has broadened the opportunities available for its students, has received invaluable support and cooperation from business and industry, and along with the co-op employers has made a lasting contribution to the Nashville community. Co-op works for Nashville Tech!

Notes

[1]James W. Wilson, "Historical Development," in Handbook of Cooperative Education, ed. Asa S. Knowles and Associates (San Francisco: Jossey-Bass, 1971), pp. 3-4.

[2]K. Patricia Cross, "Views From the Outside," The Journal of Cooperative Education 12, no. 1 (November 1975): 10.

[3]Herbert Heaton, "Some Questions About Cooperative Education," The Journal of Cooperative Education 12, no. 1 (November 1975): 47.

[4]Gordon F. Law, Cooperative Education: Handbook for Teacher-Coordinators (Chicago: American Technical Society, 1970), p. 1.

[5]J. Dudley Dawson, "Community and Junior College Programs," in Handbook of Cooperative Education, ed. Asa S. Knowles and Associates (San Francisco: Jossey-Bass, 1971), p. 47.

[6]James W. Wilson, "Patterns of Awarding Degree Credit in Cooperative Education," The Journal of Cooperative Education 15, no. 1 (Fall 1978): 87-88.

[7]Ada L. Salisbury, "Parallel Programs Are Cooperative Education," 50 Views of Cooperative Education, 4th ed., ed. Donald C. Hunt (Detroit: Midwest Center for Cooperative Education, 1978):12.

[8]Barry Heermann, Cooperative Education in Community Colleges: A Source-book for Occupational and General Educators (San Francisco: Jossey-Bass, 1973), pp. 36-39. See also Gordon F. Law, Cooperative Education: Handbook for Teacher-Coordinators, p. 2, and Libert V.P. Diaforli, "The Benefits for Cooperative Education Internship Programs to Industry and the Academic Community," The Journal of Cooperative Education 17, no. 1 (Winter 1980-81):76.

[9]Heermann, pp. 39-41; Law, pp. 2-3; and Diaforli, p. 76.

[10]Heermann, pp. 42-44; Law, p. 3; and Diaforli, pp. 76-77.

[11]Heermann, pp. 41-42 and Law, p. 3.

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